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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/064,894

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Deepa Ramaswamy

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06/28/2006

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EXAMINER

BEHNCKE, CHRISTINE M

ART UNIT

PAPER NUMBER

3661

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/064,894

Applicant(s)

RAMASWAMY ET AL.

Examiner

Christine M. Behncke

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This office action is in response to the Remarks and Affidavit filed 11 April 2006, in which claims 1-18 were presented for examination.

#### ***Response to Amendment***

2. The declaration filed on 11 April 2006 under 37 CFR 1.131 is sufficient to overcome the Harms (US 6,865,459) reference.

#### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 11, 12, 14, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colson et al., US 6,236,909.

4. **(Claim 1)** Colson et al. discloses a modular vehicle system controller for use with a vehicle, said controller containing a plurality of integrated and removable software control portions (JavaBeans, column 4, lines 33-43), wherein each respective software control portion corresponds to a certain vehicle drive system functionality such that the corresponding vehicle drive system functionality may be changed by removing one or more of the integrated software control portions and replacing it with a substitute software control portion (column 1, lines 16-27, column 5, lines 50-65 and Figures 7a-c), wherein the integrated software control portions contained within the controller are replaceable without removing the entire controller (column 1, lines 16-27, column 14, lines 23-45).

5. **(Claim 11)** Colson et al. discloses a method of organizing a vehicle system controller for use with a vehicle, said method comprising the step of: partitioning said controller into a plurality of integrated and removable software control portions (JavaBeans, column 1, lines 16-27, column 4, lines 33-43), each respective control portion corresponding to a particular vehicle drive system functionality (Figures 7a-c, column 14, lines 23-45).

6. **(Claim 15)** Colson et al. discloses a method of controlling a plurality of systems within a vehicle, said method comprising the steps of: logically grouping said plurality of systems into functional vehicle drive system groups (column 1, lines 16-27 and column 14, lines 23-45); providing a vehicle system controller having a modular architecture (column 5, lines 50-65); providing a plurality of removable modular system control software portions corresponding to each of said functional vehicle drive system groups (JavaBeans, column 1, lines 16-27, column 4, lines 33-43); and integrating said plurality of modular system control portions within the modular architecture of said vehicle system controller (column 13, line 25-column 14, line 9), wherein the control portions may be removed from the architecture of the vehicle system controller without removing the vehicle system controller from the vehicle (column 1, lines 16-27, column 14, lines 23-45).

Colson et al. does not disclose wherein the modular vehicle system is used specifically with a hybrid electric vehicle control. However, it would have been obvious to one of ordinary skill in the automotive art at the time of the invention to combine the modular vehicle system to a hybrid electric vehicle because the method of representing

and delivering the JavaBeans is disclosed to be broadly applied to any automotive computing environment having a computing platform capable of executing computer program instructions written in the Java language or may be modified to interface with the gateway of the invention (column 4, lines 16-32). Further it would have been obvious at the time of the invention to combine a hybrid vehicle with the invention of Colson et al. to decrease the application development time and allow the system to more easily updated by an authorized party (column 2, lines 7-35).

7. **(Claim 12)** Colson et al. further discloses wherein the step of partitioning said controller into a plurality of removable control portions, each of said plurality of control portions corresponding to a particular vehicle functionality further comprises the step of: logically grouping said plurality of control portions into functional groups (Figures 7a-c, column 14, lines 23-45).

8. **(Claims 14 and 17)** Colson et al. further discloses wherein each of said plurality of modular control portions represent a removable software component (column 4, lines 33-43).

9. **(Claim 18)** Colson et al. further discloses wherein said step of logically grouping said plurality of systems into functional groups further comprises the step of: maintaining a hierarchical control architecture for said plurality of systems (column 1, lines 16-27, column 4, lines 56-67, column 14, lines 23-45).

***Claim Rejections - 35 USC § 103***

10. **Claims 2-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Colson et al. as applied to claim 1 above, and further in view of Horsley et al., US 6,464,026.

Colson et al. discloses the modular vehicle system controller previously discussed wherein the controller could be used in a vehicle to control a plurality of vehicle functionalities (Figures 7a-c, column 14, lines 23-45). Colson et al. does not disclose wherein the vehicle controller comprises control portions to select the operating mode, receive and output torque commands, or control power delivery of the vehicle. However, Horsley et al. teaches a control system for a hybrid electric vehicle with a plurality of control portions, a battery pack (ESD 22), at least one power source (ESD 22 and internal combustion engine 10), wherein the plurality of control portions includes: a vehicle mode control portion which is effective to select an operating mode of the vehicle (control system B, column 6, lines 28-45); an output torque requestor control portion which is effective to receive torque commands from a plurality of vehicle subsystems and to determine a total output torque (control system E, column 4, lines 45-53); a battery management control portion which is effective to control opening and closing of contactors within the battery pack, monitor the battery pack for faults, and process the battery pack power limits (EMG controller 42, column 5, lines 11-31 and figure 10); an energy management control portion which is effective to control the delivery of power to said vehicle by an at least one power source (control system E, column 4, lines 45-53); a brake system control portion which controls regenerative and engine compression braking functions with the vehicle (energy management system 40,

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column 6, lines 9-27); a torque estimation control portion which estimates an amount of torque produced by that at least one power source (control system B, column 6, lines 46-64); and an engine control portion which controls a process and timing of when to startup and shutdown the internal combustion engine (control system B, column 6, lines 46-64). It would have been obvious to one of ordinary skill in the automotive and electronic arts to combine the method of Colson et al. with the teachings of Horsley et al. because for a safe and functioning hybrid vehicle, a controller for monitoring and controlling the battery pack is essential, as well as comprising control portions for the safe and efficient management of the vehicle braking, regenerative functionality, and engine control. Further it would have been obvious at the time of the invention to combine a hybrid vehicle with the invention of Colson et al. to decrease the application development time and allow the system to more easily updated by an authorized party (column 2, lines 7-35), such as increasing the efficiency of updating the demand maps of Horsley et al.

***Claim Rejections - 35 USC § 103***

11. Claims 11, 13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong et al., US 2001/0041956.

12. (**Claim 11**) Wong et al. discloses a method of organizing a vehicle system controller for use with a vehicle, said method comprising the step of: partitioning said controller into a plurality of integrated and removable software control portions (Figures 2 and 3, [0019], [0042] and [0046]), each respective control portion corresponding to a particular vehicle drive system functionality ([0034]).

13. **(Claim 15)** Wong et al. discloses a method of controlling a plurality of systems within a vehicle, said method comprising the steps of: logically grouping said plurality of systems into functional vehicle drive system groups ([0038]-[0040]); providing a vehicle system controller having a modular architecture ([0019], [0042] and [0046]); providing a plurality of removable modular system control software portions corresponding to each of said functional vehicle drive system groups (Figures 2 and 3); and integrating said plurality of modular system control portions within the modular architecture of said vehicle system controller ([0019]), wherein the control portions may be removable from the architecture of the vehicle controller without removing the vehicle system controller from the vehicle ([0034], [0042], [0046]).

Wong et al. does not disclose wherein the modular vehicle system is used specifically with a hybrid electric vehicle control. However, it would have been obvious to one of ordinary skill in the automotive art at the time of the invention to combine the modular vehicle system to a hybrid electric vehicle because as Wong et al. suggests, the motivations of combining the method with a hybrid vehicle include: cost effectiveness, reduction of wiring weight, simplification to upgrade, optimization of electronic and mechanical integration, and increased system performance ([0006]-[0014]).

14. **(Claims 13 and 16)** Wong et al. further discloses wherein each of said plurality of control portions represents a removable hardware portion ([0046]).

### ***Conclusion***




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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine M. Behncke whose telephone number is (571) 272-8103. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

06-24-2006

  
**THOMAS BLACK**  
**SUPERVISORY PATENT EXAMINER**